

Appl. No.: 10/582,320
Amdt. Dated: May 18, 2010
Reply to Office Action of February 22, 2010

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AMENDMENTS

To the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Previously Presented) A method of removing a residual gas from inside a conventional shipping container after a period of time in which goods were located in the container, the method comprising the steps of:

- opening an end door of the container;
- operatively coupling a panel to the container at the end door opening, the panel having a gas inlet and a gas outlet;
- extracting at least some of the residual gas present in the container via the gas outlet; and
- providing a flow of a flushing gas into the container via the gas inlet to flush residual gas from the container.

2. (Original) A method as claimed in claim 1 wherein the step of extracting the residual gas reduces gas pressure in the container below ambient atmospheric pressure outside the container.

3. (Original) A method as claimed in claim 2 wherein when the pressure of gas in the container reaches a pre-determined value, the flow of flushing gas is initiated and the gas pressure in the container increases.

4. (Previously Presented) A method of removing a residual gas from inside a conventional shipping container after a period of time in which goods were located in the container, the method comprising the steps of:

- opening an end door of the container;
- operatively coupling a panel to the container at the end door opening, the panel having a gas inlet and a gas outlet;

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delivering a flow of a flushing gas into the container via the gas inlet to flush the residual gas from the container, with a flow of the flushing gas and the residual gas being removed from the container via the gas outlet.

5. (Previously Presented) A method as claimed in claim 1 wherein the flow and/or total pressure of gases within the container is monitored and controlled.

6. (Previously Presented) A method as claimed in claim 1 wherein a majority of the residual gas present in the container is extracted.

7. (Previously Presented) A method as claimed in claim 1 further comprising the step of absorbing/adsorbing at least part of the residual gas extracted from the container into/onto an absorption/adsorption means.

8. (Original) A method as claimed in claim 7 wherein substantially all of the extracted residual gas is absorbed/adsorbed into/onto the absorption/adsorption means.

9. (Previously Presented) A method as claimed in claim 7 further comprising the step of one of washing the absorption/adsorption means, decomposing the residual gas on the absorption/adsorption means and discarding the absorption/adsorption means.

10. (Previously Presented) A method as claimed in claim 1 wherein the panel sealingly attaches at the opening so that the container is sealed during the removal of the flushing gas and the residual gas from the container.

11. (Cancelled)

12. (Cancelled)

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13. (Previously Presented) A method as claimed in claim 1 wherein the gas outlet is located at a lower region of the panel relative to the location of the gas inlet.

14. (Previously Presented) A method as claimed in claim 1 wherein the panel itself comprises a plurality of panels.

15. (Previously Presented) A method as claimed in claim 1 wherein the flushing gas is atmospheric air.

16. (Previously Presented) A method as claimed in claim 1 wherein the container is provided with apparatus for monitoring and controlling the pressure of gas in the container.

17. (Previously Presented) A method as claimed in claim 1 further comprising the step of monitoring the concentration of residual gas in the container.

18. – 23. (Cancelled)

24. (Previously Presented) Residual gas removal apparatus arranged to be operatively coupled to a conventional shipping container for removing residual gas from inside the container, the apparatus comprising:

a panel arranged for operative coupling to an end door opening of the container in a sealing manner;

a gas inlet for operative coupling to the panel for introducing a flushing gas into the container;

gas extraction apparatus for operative coupling to the panel for extracting gas from the container;

a pressure monitoring device for monitoring the total pressure of gases within the container; and

a controller for controlling the flow of gases through at least one of the gas inlet and gas extraction apparatus in response to the monitored pressure within the container.

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25. (Previously Presented) Apparatus as claimed in claim 24 further comprising absorption/adsorption apparatus for absorbing/adsorbing residual gas extracted from the container.

26. (Previously Presented) Apparatus as claimed in claim 25 wherein the absorption/adsorption apparatus comprises an absorption/adsorption bed including activated carbon to which at least part of the extracted residual gas attaches at its surface and in its pores.

27. (Previously Presented) Apparatus as claimed in claim 24 wherein the residual gas removal apparatus also comprises a panel arranged in use to be coupled to the enclosure in a sealing manner, the gas inlet and the gas extraction apparatus being operatively coupled or mounted to the panel.

28. (Previously Presented) Apparatus arranged to be operatively coupled to a conventional shipping container for removing residual gas from inside the container, the apparatus comprising:

a framework mountable onto a surface and locatable adjacent to the container in use; and

a member mounted to the framework and comprising a gas inlet for introducing a flushing gas into the container, a gas outlet for extracting gas from the container and a coupler for coupling the member to the container;

wherein the member is moveable between an in use coupled position in which the coupler couples the member to an end door opening of the container and a de-coupled position in which the member is spaced from the container.

29. (Original) Apparatus as claimed in claim 28 wherein the member is pivotally mounted to the framework.

30. (Previously Presented) Apparatus as claimed in claim 28 wherein the member further comprises a panel for coupling to an opening in the enclosure.

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31. (Cancelled)

32. (Previously Presented) A method as claimed in claim 4 wherein the flow and/or total pressure of gases within the container is monitored and controlled.

33. (Previously Presented) A method as claimed in claim 4 wherein a majority of the residual gas present in the container is removed.

34. (Previously Presented) A method as claimed in claim 4 further comprising the step of absorbing/adsorbing at least part of the residual gas removed from the container into/onto an absorption/adsorption material.

35. (Previously Presented) A method as claimed in claim 34 wherein substantially all of the removed residual gas is absorbed/adsorbed into/onto the absorption/adsorption material.

36. (Previously Presented) A method as claimed in claim 34 further comprising the steps of washing the absorption/adsorption material, decomposing the residual gas on the absorption/adsorption material and discarding the absorption/adsorption material.

37. (Previously Presented) A method as claimed in claim 4 wherein the panel sealingly attaches at the opening so that the container is sealed during the removal of the flushing gas and the residual gas from the container.

38. (Cancelled)

39. (Cancelled)

40. (Previously Presented) A method as claimed in claim 37 wherein the gas outlet is located at a lower region of the panel relative to the location of the gas inlet.

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41. (Previously Presented) A method as claimed in claim 4 wherein the panel itself comprises a plurality of panels.

42. (Previously Presented) A method as claimed in claim 4 wherein the flushing gas is atmospheric air.

43. (Previously Presented) A method as claimed in claim 4 wherein the container is provided with apparatus for monitoring and controlling the pressure of gas in the container.

44. (Previously Presented) A method as claimed in claim 4 further comprising the step of monitoring the concentration of residual gas in the container.

45. - 73. (Cancelled)

74. (Previously Presented) A method of removing a residual gas from inside a conventional shipping container after a period of time in which goods were located in the container, the method comprising the steps of:

accessing the container via an end door opening of the container;

pumping at least some of the residual gas present in the container out of the container via the end door opening; and

pumping a flow of a flushing gas into the container via the end door opening to flush residual gas from the container.

75. (Previously Presented) A method as claimed in claim 74 wherein the step of pumping the residual gas reduces gas pressure in the container below ambient atmospheric pressure outside the container.

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76. (Previously Presented) A method as claimed in claim 75 wherein, when the pressure of gas in the container reaches a pre-determined value, the flow of flushing gas is initiated and the gas pressure in the container increases.

77. (Previously Presented) A method of removing a residual gas from inside a conventional shipping container after a period of time in which goods were located in the container, the method comprising the steps of:

accessing the container via an end door opening of the container; and

pumping a flow of a flushing gas into the container via the end door opening to flush the residual gas from the container, with a flow of the flushing gas and the residual gas being removed from the container via the end door opening.

78. (Previously Presented) A method as claimed in claim 74 wherein the flow and/or total pressure of gases within the container is monitored and controlled.

79. (Previously Presented) A method as claimed in claim 74 wherein a majority of the residual gas present in the container is removed.

80. (Previously Presented) A method as claimed in claim 74 further comprising the step of absorbing/adsorbing at least part of the residual gas extracted from the container into/onto an absorption/adsorption means.

81. (Previously Presented) A method as claimed in claim 80 wherein substantially all of the extracted residual gas is absorbed/adsorbed into/onto the absorption/adsorption means.

82. (Previously Presented) A method as claimed in claim 80 further comprising the step of one of washing the absorption/adsorption means, decomposing the residual gas on the absorption/adsorption means and discarding the absorption/adsorption means.

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83. (Previously Presented) A method as claimed in claim 74 wherein a panel is sealingly attached at the opening so that the container is sealed during the removal of the flushing gas and the residual gas from the container.

84. (Previously Presented) A method and claimed in claim 74 wherein the panel has a gas inlet and the flushing gas is introduced via the gas inlet.

85. (Previously Presented) A method as claimed in claim 83 wherein the panel has a gas outlet and the gas is removed via the gas outlet.

86. (Previously Presented) A method as claimed in claim 85 wherein the gas outlet is located at a lower region of the panel relative to the location of the gas inlet.

87. (Previously Presented) A method as claimed in claim 83 wherein the panel itself comprises a plurality of panels.

88. (Previously Presented) A method as claimed in claim 74 wherein the flushing gas is atmospheric air.

89. (Previously Presented) A method as claimed in claim 74 wherein the container is provided with apparatus for monitoring and controlling the pressure of gas in the container.

90. (Previously Presented) A method as claimed in claim 74 further comprising the step of monitoring the concentration of residual gas in the container.

91. (Previously Presented) A method as claimed in claim 77 wherein the flow and/or total pressure of gases within the container is monitored and controlled.

92. (Previously Presented) A method as claimed in claim 77 wherein a majority of the residual gas present in the container is removed.

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93. (Previously Presented) A method as claimed in claim 77 further comprising the step of absorbing/adsorbing at least part of the residual gas extracted from the container into/onto an absorption/adsorption material.

94. (Previously Presented) A method as claimed in claim 93 wherein substantially all of the extracted residual gas is absorbed/adsorbed into/onto the absorption/adsorption material.

95. (Previously Presented) A method as claimed in claim 93 further comprising the steps of washing the absorption/adsorption material, decomposing the residual gas on the absorption/adsorption material and discarding the absorption/adsorption material.

96. (Previously Presented) A method as claimed in claim 77 wherein a panel is sealingly attached at the opening so that the container is sealed during the removal of the flushing gas and the residual gas from the container.

97. (Previously Presented) A method as claimed in claim 96 wherein the panel has a gas inlet and the flushing gas is introduced via the gas inlet.

98. (Previously Presented) A method as claimed in claim 96 wherein gas is removed via a gas extraction apparatus.

99. (Previously Presented) A method as claimed in claim 96 wherein the gas outlet is located at a lower region of the panel relative to the location of the gas inlet.

100. (Previously Presented) A method as claimed in claim 83 wherein the panel itself comprises a plurality of panels.

101. (Previously Presented) A method as claimed in claim 77 wherein the flushing gas is atmospheric air.

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102. (Previously Presented) A method as claimed in claim 77 wherein the container is provided with apparatus for monitoring and controlling the pressure of gas in the container.

103. (Previously Presented) A method as claimed in claim 77 further comprising the step of monitoring the concentration of residual gas in the container.